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City of Memphis

Retirement Benefit Alternatives

September 14, 2013

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Agenda

- Current DB Plan Status
- Considerations for Comparing Plan Alternatives
- Retirement Plan Design Alternatives
- Comparison of Cost
- Annual Benefits as % of Payroll

Current DB Plan Status

Current DB Plan Status

- Plan's funded ratio has deteriorated over past 5 years, primarily as result of Great Recession hit in 2008-09, and trend projected to continue

(In 000's)

Plan Year	Actuarial Assets	Actuarial Liability	Unfunded Liability	Funded Ratio
July 1, 2008	$2,184,255	$2,090,088	$94,167	104.5%
July 1, 2009	$1,773,457	$2,222,984	($449,527)	79.8%
July 1, 2010	$1,805,071	$2,336,075	($531,004)	77.3%
July 1, 2011	$1,838,424	$2,447,974	($609,550)	75.1%
July 1, 2012	$1,867,934	$2,509,930	($641,996)	74.4%
July 1, 2013	$1,884,000	$2,566,000	($682,000)	73.0%
July 1, 2014	$1,957,000	$2,697,000	($740,000)	72.0%

- Despite better than average asset returns for 2010 and 2011, the plan's funded status has continued to deteriorate
- <u>Assuming no other changes, it is estimated that it would require an annual asset return of 13% over each of the next 10 years in order to fully fund the plan</u>

Current DB Plan Status

- The current funding policy of contributing 6.0% of pay is less than the annual required contribution, which has decreased the funded status

Plan Year	Annual Required Contribution (ARC)	ARC as % of Payroll	City's Contribution	City Contribution Rate
July 1, 2008	$21,208,000	7.5%	$16,172,000	5.0%
July 1, 2009	$71,447,000	24.1%	$17,419,000	5.0%
July 1, 2010	$80,021,000	25.9%	$20,132,000	6.0%
July 1, 2011	$89,006,000	28.1%	$21,108,000	6.0%
July 1, 2012	$90,363,000	30.3%	$18,968,000	6.0%
July 1, 2013	$95,606,000	32.4%	$19,530,000	6.0%
July 1, 2014	$101,325,000	30.3%	$20,089,000	6.0%

Current DB Plan Status

- ***Conclusion***: Based upon the actuarial assumptions used to determine the plan's liability and ARC, a projection of a workforce similar in size to the current one, and the current funding policy of 6.0% of compensation, the plan is not sustainable in the long-term

Current DB Plan Status

- Other state and local governments have experienced similar trends in their retirement schemes, which has led to plan design changes
- From 2009-2012, more than 40 states have enacted major changes in their retirement plans to address long-term funding issues
    - Employee and employer contribution levels
    - Level of benefits provided in the plan
    - Type of retirement scheme offered – DB, DC, or combination of both
- Examples
    - Kentucky, Kansas and Louisiana moved to a Cash Balance DB plan
    - Utah instituted employee choice for new employees of DC plan or a hybrid plan
    - State of Tennessee recently converted to hybrid plan design

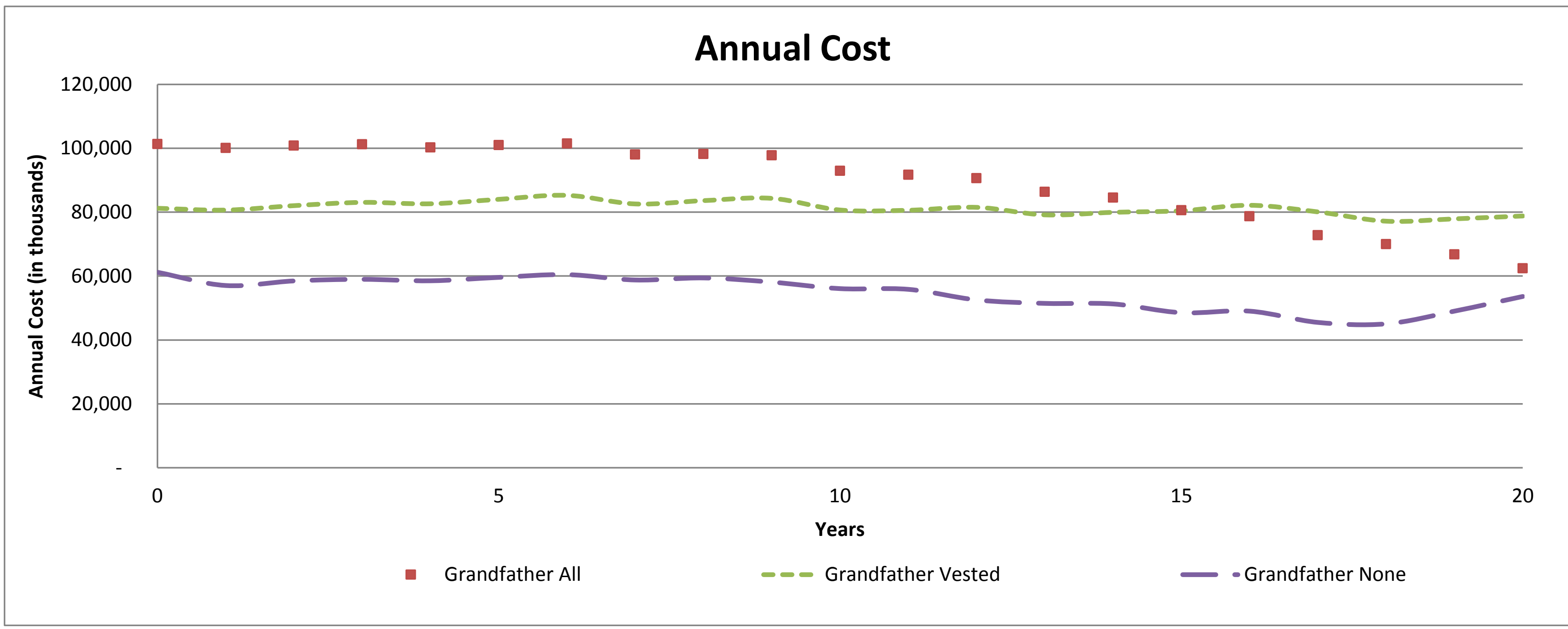
Current DB Plan Status

Summary of Alternatives

	Current	Proposed		
	"Traditional" Defined Benefit ("DB") Pension Plan	Defined Contribution ("DC") Plan	Cash Balance Plan	Pension Preservation Plus Plan
Plan Description	- Guaranties monthly payments from retirement until death of member and/or beneficiary; payments are a function of years of service and final salary. - Employee contributes 8% and City contributes 6% to fund the benefit. - Assets/investments are managed by the plan and not by each employee.	- Employee has individual account. - Employee contributes 8%, City contributes 6%. - Account increases (decreases) with actual investment returns.	- A DB plan. - Hypothetical account balance (looks similar to DC plan). Account can be paid as lump sum or annuity at retirement. - Account increases with "contribution" or pay credits of 14% of salary (funded 8% Employee and 6% City) and interest credits of 7.5% on acc't. - Assets/investments are managed by the employer and not participant directed.	- A combination of a DB plan and a DC plan. - DB plan is cash balance plan where account balance consists only of pay credits of 14% of salary. - DC component consists of interest credits of 7.5% on acc't; investments are participant directed.
Who Has Investment risk	Employer	Employee	Employer	Employer and Employee Share
Volatility Impact on Balance Sheet	Volatile due to interest rate and investment risk	None	Less than traditional pension; more than DC	Less than traditional pension; more than DC
Mortality risk	Employer takes on longevity risk	Employee retains risk	Employee has risk if lump sum is elected; employer/insurer if annuity is elected	Employee has risk if lump sum is elected; employer/insurer if annuity is elected
Employee perception	- Not always fully appreciated by all employees	- Account balance easy to understand - Portable	- Account balance easy to understand - Portable	- Account balance easy to understand - Portable

Impact on Cost of Grandfathering (PPP Example)

The following table illustrates the program cost of the current DB plan and the Pension Preservation Plus Plan *grandfathering all members, vested members (10 years of service), and no members*. Non-grandfathered participants will have their pre-2014 benefits frozen for both service and final average earnings. The City is assumed to be contributing a *30-year closed amortization* towards the current unfunded liability of the Defined Benefit plan.



Impact of Grandfathering in 2014

(in thousands)

	Current Plan	GF Vested	GF None
Actuarial Accrued Liability (AAL)	$2,696,853	$2,572,408	$2,441,198
Actuarial Value of Assets	1,956,511	1,956,511	1,956,511
Unfunded AAL	740,342	615,897	484,687

Considerations for Comparing Plan Alternatives

Considerations for Comparing Plan Alternatives

- City of Memphis is its current retirement benefit program
- Key areas of concern include:
    - Volatility of contributions and financial reporting expense
    - Balance sheet liability/funded status
    - Recruiting and retention objectives
    - Providing retirement benefits valued by employees
- In light of these objectives, *three alternative retirement benefit designs* for future employees and non-grandfathered participants have been considered
    - Changing to Defined Contribution (DC) plan
    - Changing to a Cash Balance (CB) plan – Traditional vs. Market Based
    - Changing to a Pension Preservation Plus (PPP) plan
- Note: Other design alternatives exists such as amending current provisions

Considerations for Comparing Plan Alternatives

- Set objectives for the new plan design
  - Level of benefits, level of contributions, risk sharing, etc.
- Determine appropriate level of cash costs and financial statement volatility
- Determine the "grandfathering" provisions
  - Grandfather no members
  - Grandfather all vested members at July 1, 2014
  - Grandfather all current members at July 1, 2014
- Determine the treatment of current benefits for non-grandfathered group
  - Convert to opening balance for DC or hybrid plan designs
  - Freeze accrued benefit at July 1, 2014 – Soft freeze vs. Hard freeze

Retirement Plan Design Alternatives

Retirement Plan Design Alternatives

Summary of Alternatives

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Who Has Investment risk	Employer	Employee	Employer	Employer and Employee Share
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Mortality risk	Employer takes on longevity risk	Employee retains risk	Employee has risk if lump sum is elected; employer/insurer if annuity is elected	Employee has risk if lump sum is elected; employer/insurer if annuity is elected
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Retirement Plan Design Alternatives

Current Plan Design

	General		Police & Fire	
	Pre-2012	Post-2012	Pre-2012	Post-2012
Accrual	2.50% / 1.00%	2.25% / 1.00%	2.50% / 1.00%	2.25% / 1.00%
FAE *	1-Year	3-Year	3-Year	3-Year
Max Accrual	72.5% (35-yrs)	72.5% (42-yrs)	72.5% (35-yrs)	72.5% (42-yrs)
Retirement Eligibility	60&10, 65&5, 25Yrs	60&10, 65&5, 25Yrs	55&10, 25Yrs	55&10, 25Yrs
Early Retirement Reduction	None	5.0% from 62	None	5.0% from 52
Employee Contribution Rate	8.0%	8.0%	6.5%/6.25%, 8.0% Nonvested	8.0%

* FAE = Final Average Earnings

Retirement Plan Design Alternatives

Social Security Replacement Plan

- The City does not have to include in Social Security employees who are participating in its retirement program provided that program meets certain requirements.
- For a defined contribution plan to qualify, the annual allocation must equal at least 7.5 percent of an employee's compensation. Contributions from both the employee and employer may be used to make up the 7.5 percent. [*See Internal Revenue Regulation Section 31.3121(b)(7)-2(e)(2)(iii)(A)]*

Retirement Plan Design Alternatives

Defined Contribution Plan

- Provides an employer allocation to each employee's account. The allocation can be a single rate for all eligible employees, age-based, service-based, or designed to follow a DB accrual pattern. Investments are participant directed.

<u>Advantages:</u>

- Cash/accounting costs predictable - tied directly to allocation rate provided
- Generally no balance sheet liability, as assets equal liabilities
- Eliminates investment risk for the employer
- Different allocation rates can be utilized for different employee groups to better align with reward objectives

Retirement Plan Design Alternatives

Defined Contribution Plan (continued)

<u>Limitations:</u>

- Does not typically provide a retirement benefit with lifetime annuity options (i.e., employee retains mortality risk).
- Requires investment education for participants to manage account as participants retain investment risk.
- No cost leverage for employer (i.e., contribution is dollar for dollar).
- Investments managed by employees instead of professionals.
- Older employees do not accrue as much of a benefit in the later years.

Retirement Plan Design Alternatives

Cash Balance Plan

- A cash balance plan provides each eligible employee with an allocation to a notional account. Notional account grows with interest based on a designated interest crediting rate.
  - Interest crediting rate may be fixed, index based rate (e.g., treasury rate), or a market based rate (e.g., actual return on assets in the plan assets)
- Benefits provided are essentially the same as a DC plan, with two key distinctions:
  - Assets are professionally managed by the employer and their advisors (e.g., employees do not have individual investment discretion).
  - Annuities are the normal form under the Plan.

Retirement Plan Design Alternatives

Cash Balance Plan (continued)

Advantages

- Provides a retirement benefit with lifetime annuity options, with professionally managed investments.
- Due to leverage, cash and accounting costs to the employer can be 5% to 30% less than the defined contribution allocation.
  - Actual impact will differ based on valuation assumptions
- Because the benefits are within the DB plan, the existing benefit structure can be maintained for employees based on grandfathering decisions.
- If Market-based Cash Balance:
  - Can mitigate investment risk (for the employer) that is inherent in a traditional defined benefit plan.
  - Reduces balance sheet volatility since investment performance impacts both plan assets and benefit obligations.

Retirement Plan Design Alternatives

Cash Balance Plan (continued)

Limitations:

- Pension expense will still have some volatility as compared to a DC plan due to change in underlying assumptions and experience.
- Participants nearing retirement do not have the ability to re-balance or adjust their investment mix.
- Requires greater emphasis on educating employees on asset allocation and expected returns than DB.

Retirement Plan Design Alternatives

Pension Preservation Plus (PPP) Plan

- A PPP Plan combines a DB plan with a DC plan where annual allocations are earned in a DB plan (similar to a cash balance plan) and annual interest credits are contributed to a DC plan
- On average about 50% of ultimate benefit provided by each plan
- DC component may be converted to an annuity and layered on top of the DB benefit

<u>Advantages:</u>

- Volatility in DB plan design essentially cut in half
- Significantly lower costs in early years of a participant's career
- Investment risk sharing – employer takes on the investment risk of DB component and employees takes on the investment risk of DC component

<u>Limitations:</u>

- Volatility in DB plan still exists; additional administration on new DC plan

Comparison of City Cost

Comparison of City Cost

City Cost Defined

- "City Cost" in graphs reflects DB ARC *plus* DC contribution (if applicable)
- DB ARC equals DB normal cost *plus* amortization of the unfunded accrued liability

Valuation and Projection Assumptions

- Valuation and projection assumptions follow those used for the July 1, 2012 actuarial valuation
  - Census data is based on 2012 valuation data adjusted to July 1, 2014
  - Assumed asset return is 7.5% annually
  - Valuation interest rate for DB component is 7.5%
  - Salary scale is 5.0% annually
  - Full replacement of active population is assumed such that active count remains constant throughout projection
  - Participant return on balances are assumed to be 7.5%
  - All scenarios reflect fully subsidized J&S provisions

Comparison of City Cost

Scenario	GF Method	Graph Type	City Contribution
A.1	None	Cost*	6.0% of Pay
A.2	None	UAAL**	6.0% of Pay
B.1	None	Cost	6.0% of Pay plus Funding Legacy DB***
B.2	None	UAAL	6.0% of Pay plus Funding Legacy DB***
C.1	Vested	Cost	6.0% of Pay
C.2	Vested	UAAL	6.0% of Pay
D.1	Vested	Cost	6.0% of Pay plus Funding Legacy DB***
D.2	Vested	UAAL	6.0% of Pay plus Funding Legacy DB***

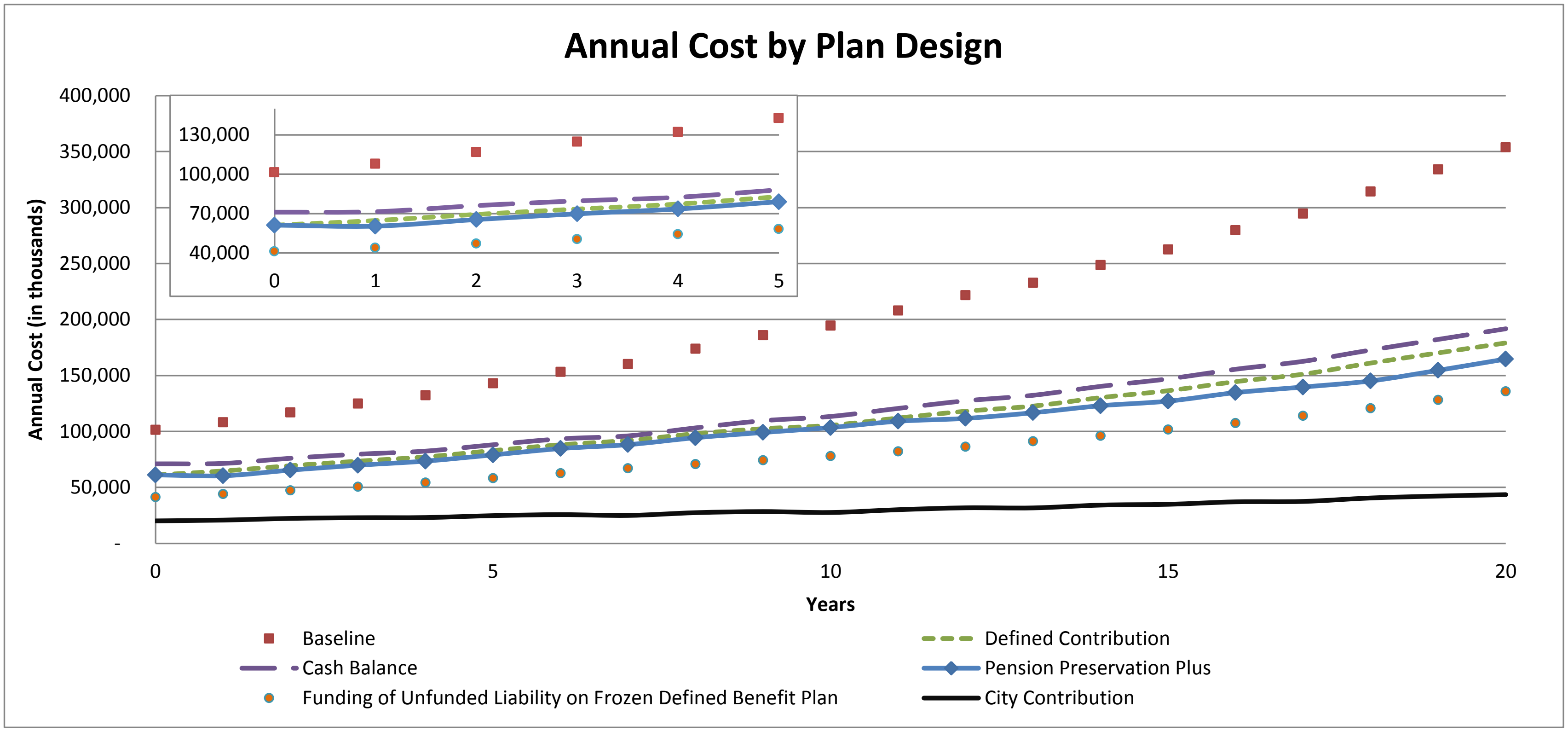
* Cost = DB ARC plus DC contribution (if applicable)

** UAAL = Unfunded Actuarial Accrued Liability

*** Funding of Legacy DB plan over 30 years

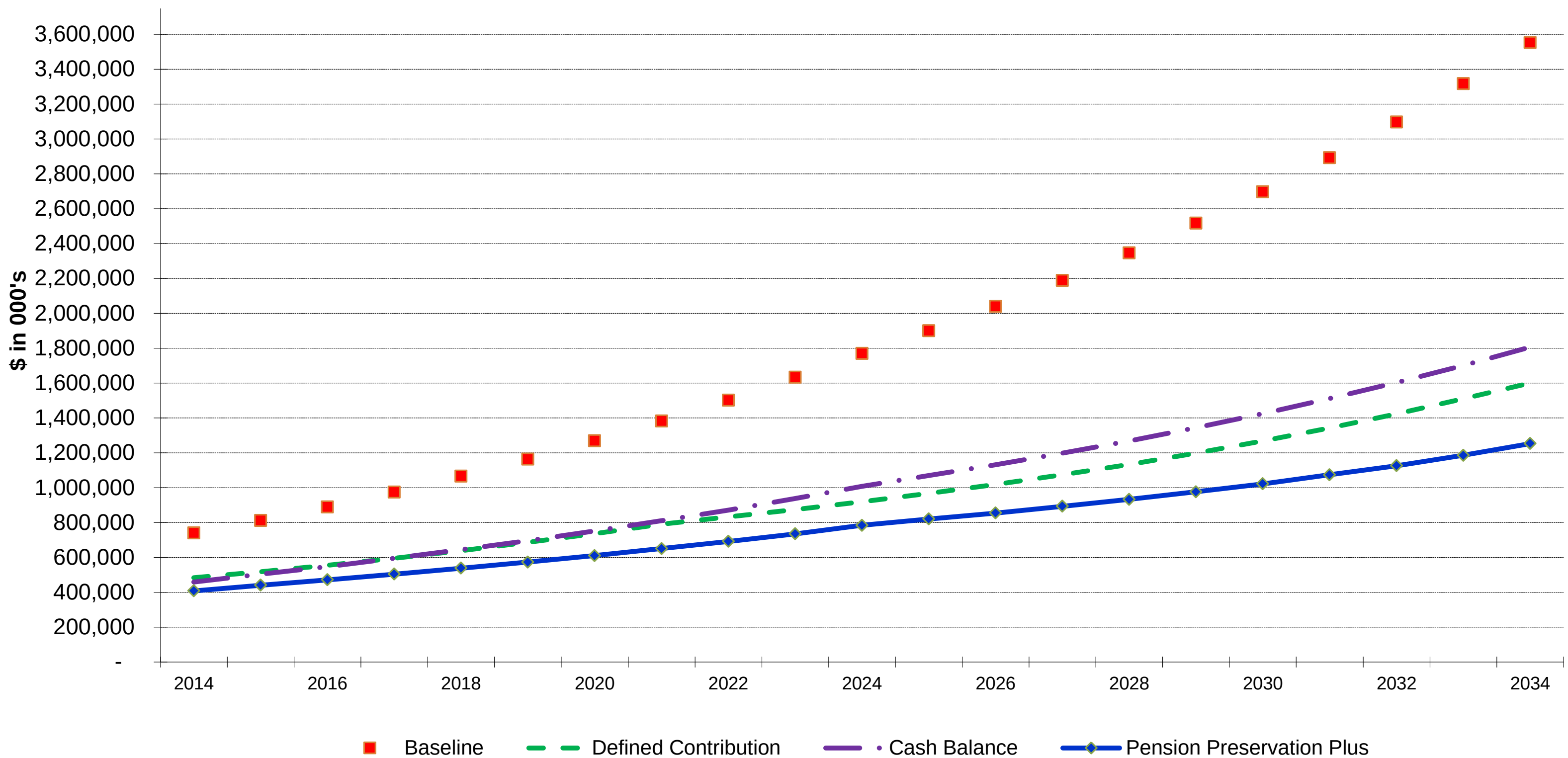
A.1 Annual City Cost – 6.0% of Pay / GF None

The following table illustrates the program cost of the current plan and the plan design options based on *grandfathering no members*. All current members and new entrants will fall under the new plan design effective July 1, 2014.



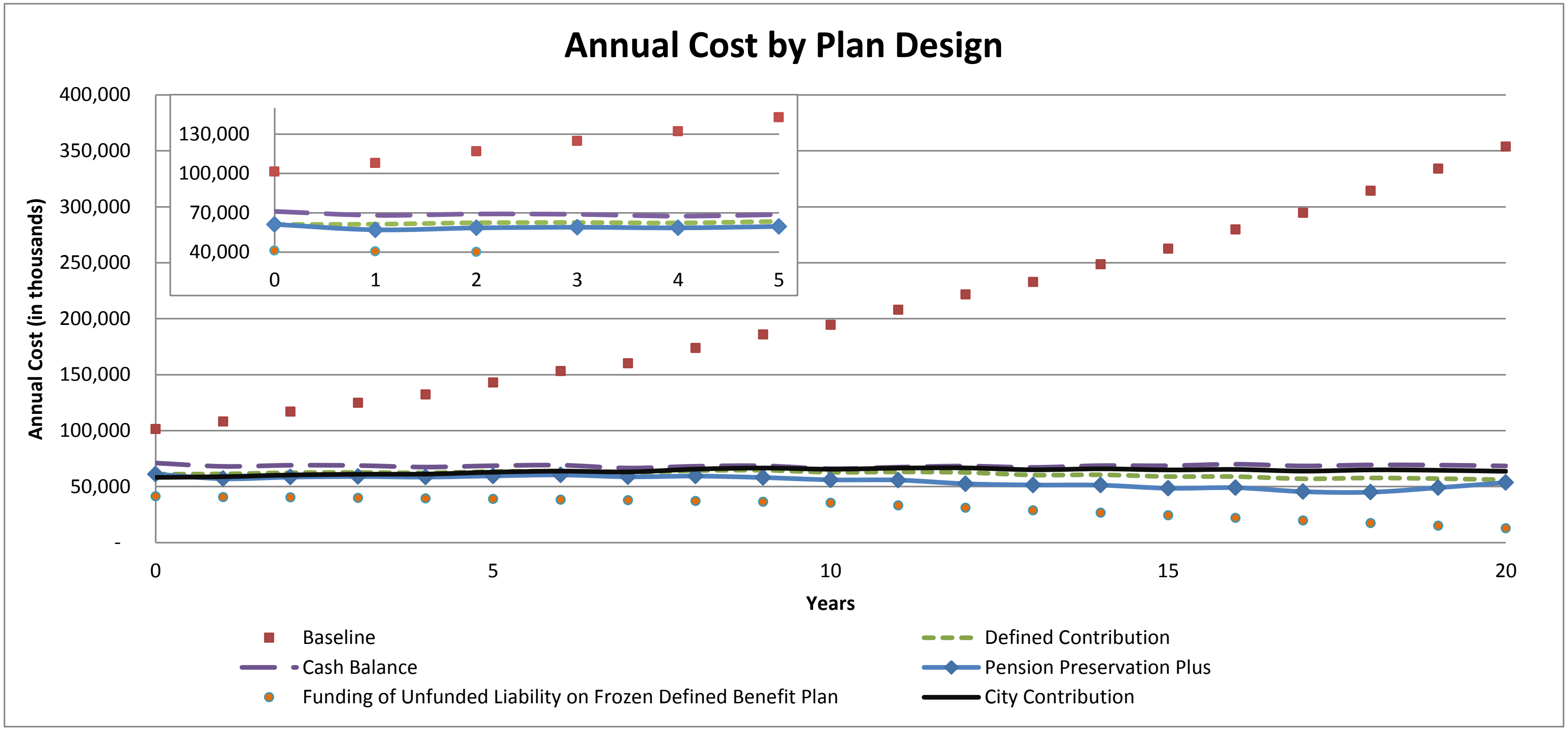
A.2 Funded Status – 6.0% of Pay / GF None

The following table illustrates the unfunded actuarial accrued liability of the current plan and the plan design options based on *grandfathering no members*. All current members and new entrants will fall under the new plan design effective July 1, 2014.



B.1 Annual City Cost – 6.0% of Pay plus Funding DB / GF None

The following table illustrates the program cost of the current plan and the plan design options based on *grandfathering no members*. All current members and new entrants will fall under the new plan design effective July 1, 2014. The City is assumed to contribute 6.0% of Pay plus a *30-year closed amortization* of the current unfunded liability of the Defined Benefit plan.



B.2 Funded Status – 6.0% of Pay plus Funding DB / GF None

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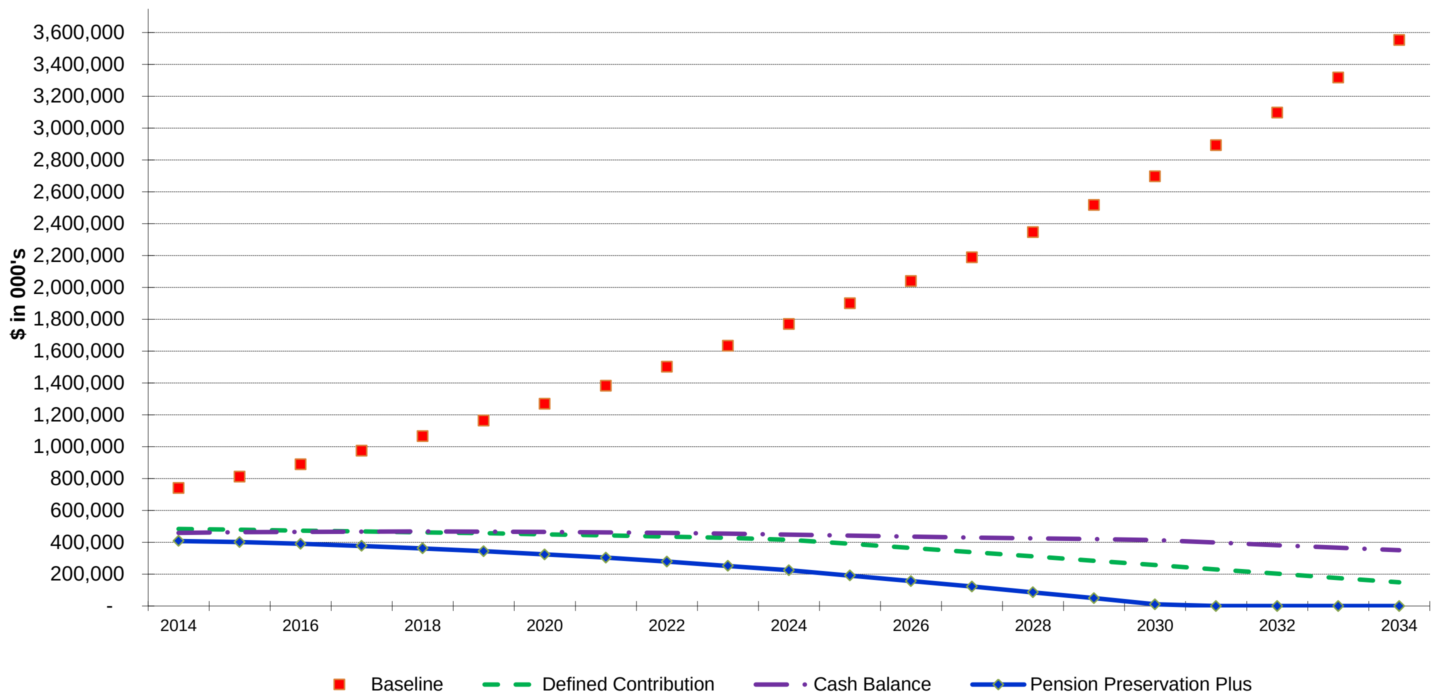
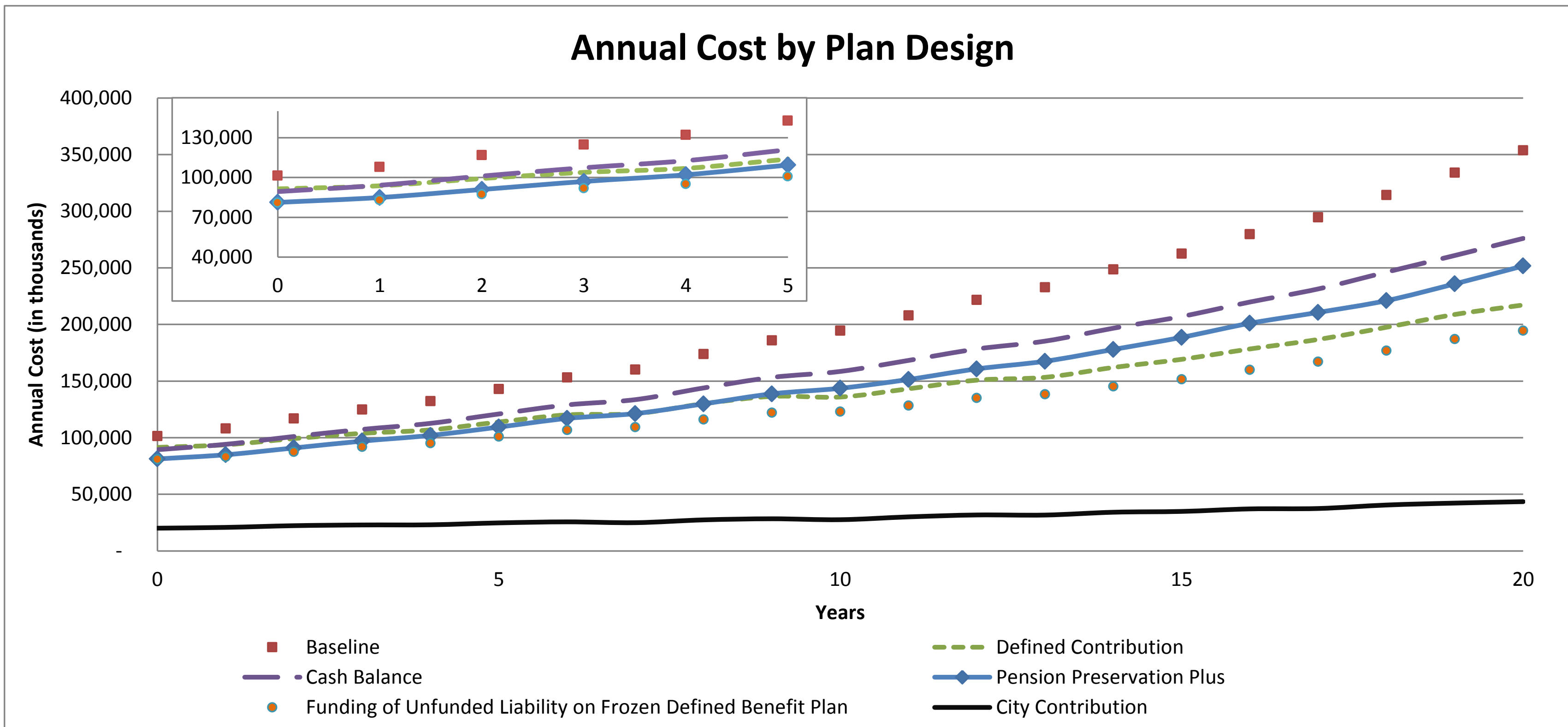


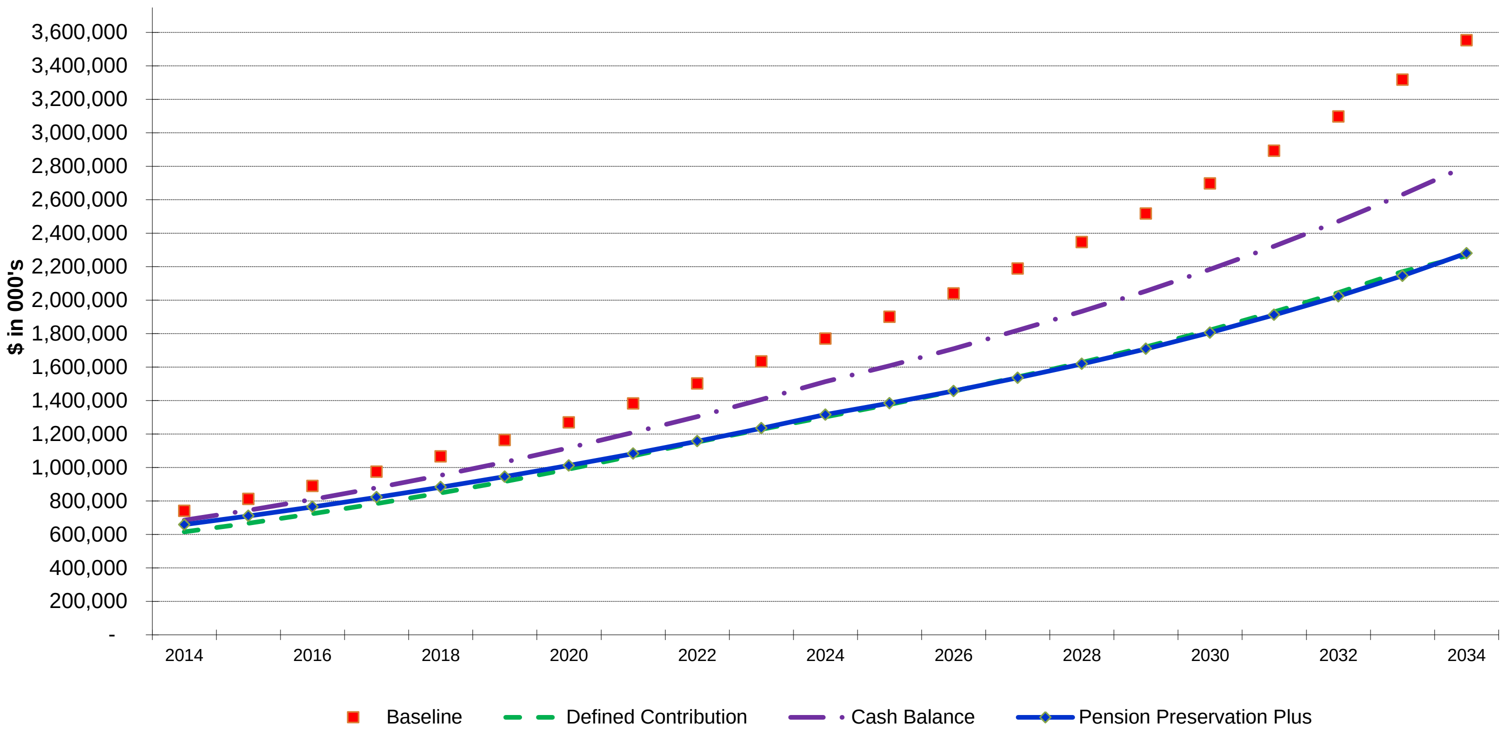
C.1 Annual City Cost – 6.0% of Pay / GF Vested

The following table illustrates the program cost of the current plan and the plan design options based on *grandfathering vested members* (10 years of service at July 1, 2014). All non-vested members and new entrants will fall under the new plan design effective July 1, 2014.



C.2 Funded Status Cost – 6.0% of Pay / GF Vested

The following table illustrates the unfunded actuarial accrued liability of the current plan and the plan design options based on *grandfathering vested members* (10 years of service at July 1, 2014). All non-vested members and new entrants will fall under the new plan design effective July 1, 2014.



D.1 Annual City Cost – 6.0% of Pay plus Funding DB / GF Vested

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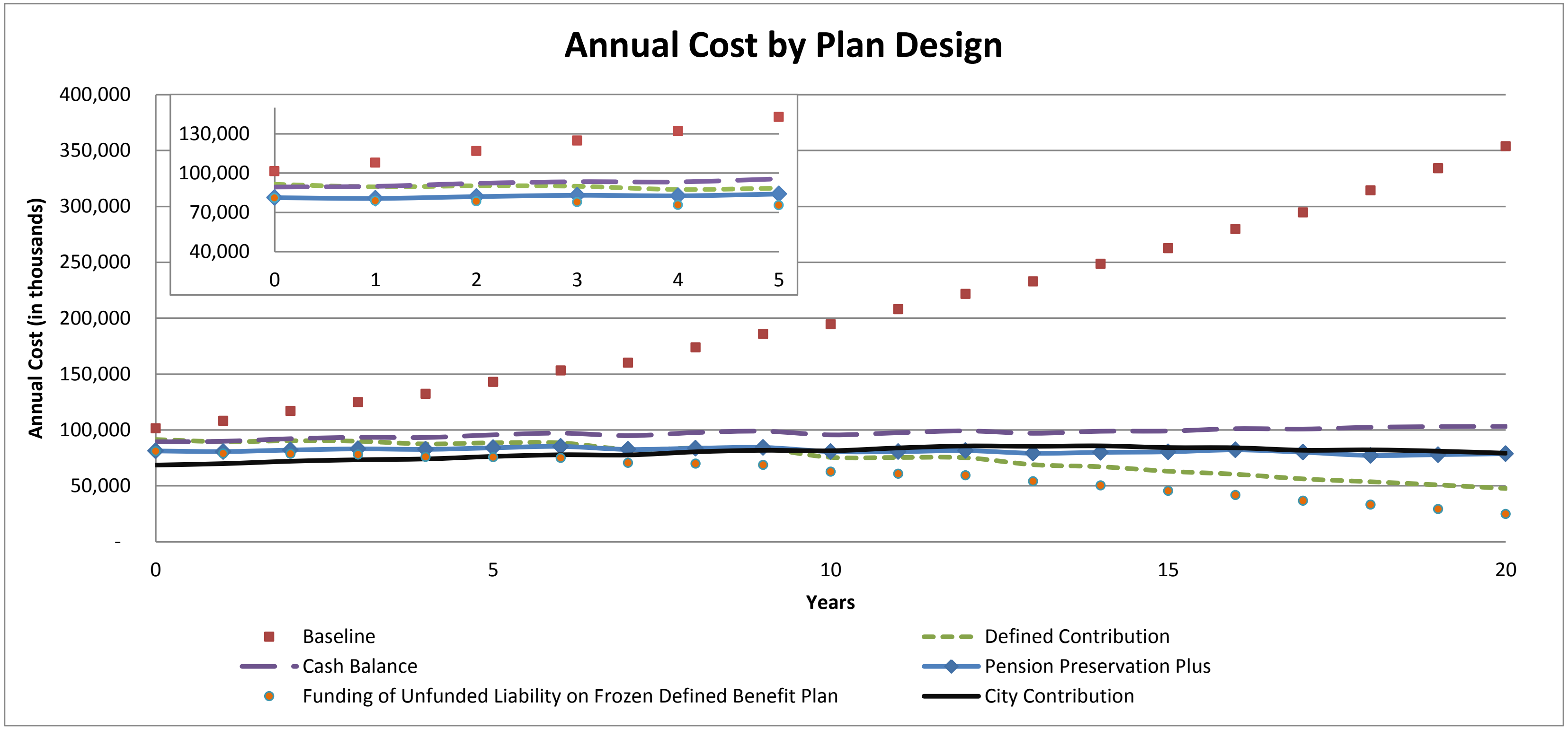
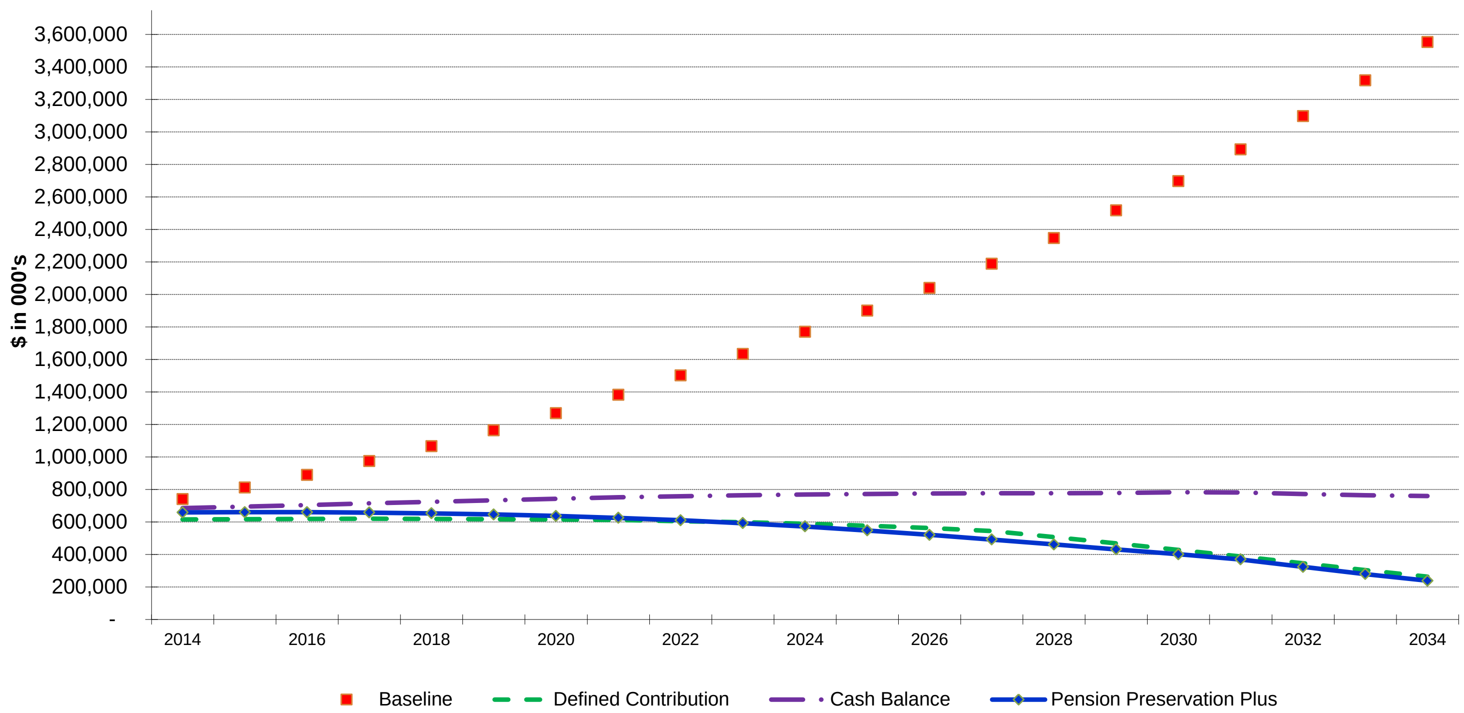


D.2 Funded Status – 6.0% of Pay plus Funding DB / GF Vested

The following table illustrates the unfunded actuarial accrued liability of the current plan and the plan design options based on *grandfathering vested members* (10 years of service at July 1, 2014). All non-vested members and new entrants will fall under the new plan design effective July 1, 2014. The City is assumed to contribute 6.0% of Pay plus a *30-year closed amortization* of the current unfunded liability of the Defined Benefit plan.



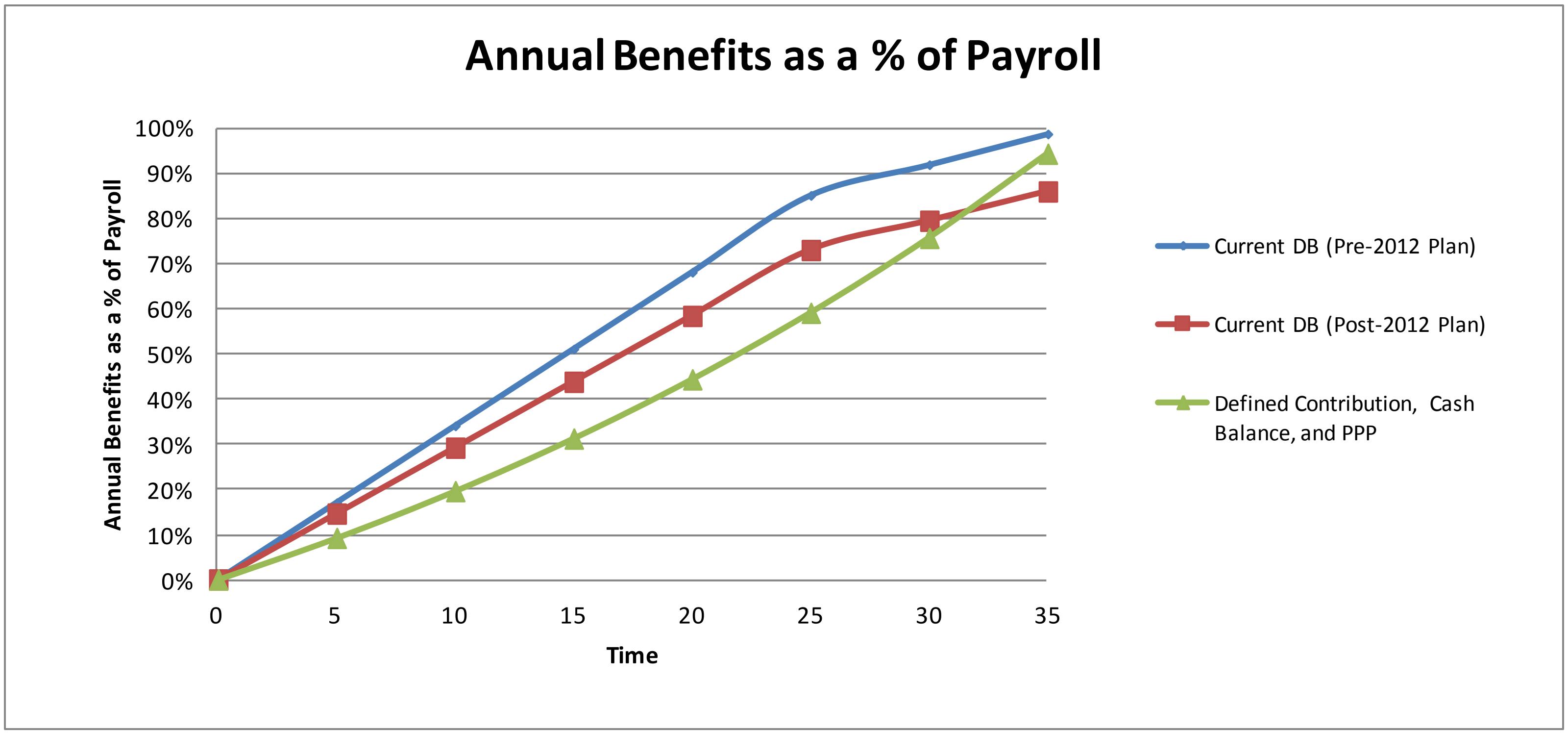
Comparison of City Cost – Options and Levers

	Defined Contribution	Cash Balance Plan	Pension Preservation Plus
Investment Return		Market Based	
Interest Credits		Fixed Rate, Index Based or Market Based	
Pay Credits / Contribution %	Flat Rate, Service-Based Rates, Age-Based Rates		
Grandfathering	All members on 7/1/2014 Vested members on 7/1/2014		
Freeze of Prior Plan	Hard or Soft Freeze		
Current DB Conversion	Assumptions Used to Convert DB Benefit		
J&S Subsidy	Free or Charge for J&S		

Annual Benefits as % of Payroll

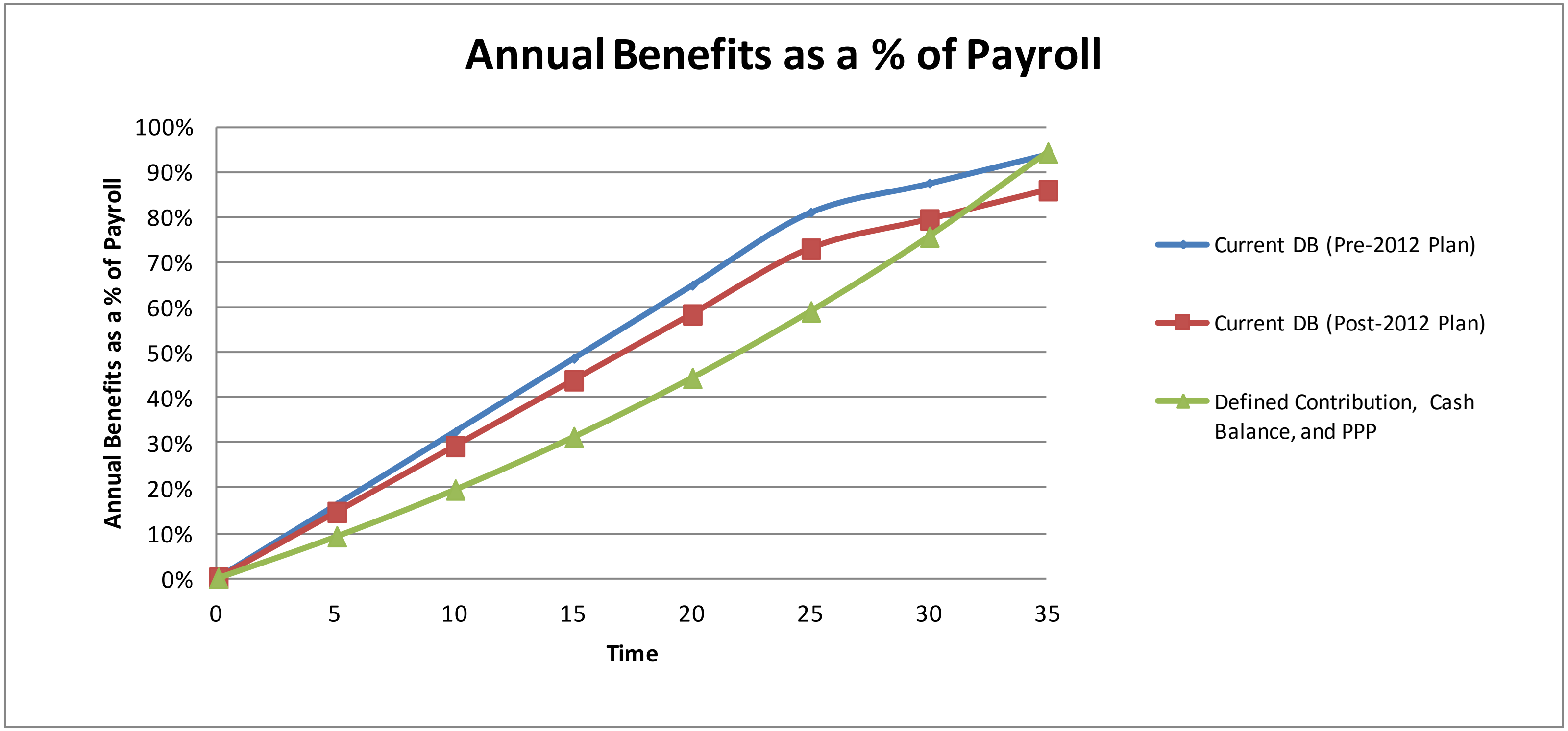
Annual Benefits as % of Payroll

- General Employee – Illustration of Accrual Pattern as a Percentage of Pay
- Age 25, $50,000 salary, 5.0% salary scale, 7.5% investment return



Annual Benefits as % of Payroll

- Police & Fire – Illustration of Accrual Pattern as a Percentage of Pay
- Age 25, $50,000 salary, 5.0% salary scale, 7.5% investment return



Disclaimers

In preparing the results presented herein, we have relied upon information City of Memphis provided to us regarding assumptions, plan provisions, and plan participants. While the scope of our engagement did not call for us to perform an audit or independent verification of this information, we have reviewed this information for reasonableness. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The analysis presented herein were prepared pursuant to our engagement letter dated May 2012.

No statement in this report is intended as a recommendation in favor, or in opposition, of the proposed alternatives. Except as otherwise noted, potential impacts on other benefit plans were not considered.

The calculations performed for this analysis are based upon assumptions regarding future events. However, the plan's long term costs will be determined by actual future events, which may differ materially from the assumptions that were made. The calculations are also based upon present and proposed plan provisions that are outlined herein. If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, you should contact the author of this report prior to relying on information in the report.

The results contained herein are reasonable results. However, a different set of results could be considered reasonable actuarial results, since the Actuarial Standard of Practice describe a 'best-estimate range' for each assumption, rather than a single best-estimate value. Thus, reasonable results differing from those presented herein could have been developed by selecting different points within the best-estimate ranges for various assumptions.

This analysis was prepared for the internal use of City of Memphis in connection with our analysis of their current benefit offerings as compared with the Surveyed Group. It is not intended nor necessarily suitable for other purposes.

Subject to reliance on the data provided, all estimates are based on information available as of a point in time and are subject to ongoing unforeseen and random events. As such, any reported results must be viewed as having a likely range of variability from the estimate, both up and down. Differences between our estimates and actual results depend on the extent to which future experience conforms to the assumptions made for this analysis. It is certain that actual experience will not conform exactly to the assumptions used in this analysis. Although estimated amounts have not been rounded, no inference should be made regarding the precision of such results.

The actuaries who prepared the results are members of the Society of Actuaries and the American Academy of Actuaries and meet the "Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States" relating to pension plans. To the best of our knowledge, the individuals involved in this engagement have no relationship that may impair, or appear to impair, the objectivity of our work.

If you have reason to believe that the information provided in this report is inaccurate, or is in any way incomplete, or if you need further information in order to make an informed decision on the subject matter of this letter, please contact the author of the report prior to making such decision.

This document was not intended or written to be used, and it cannot be used, for the purpose of avoiding U.S. federal, state or local tax penalties. This includes penalties that may apply if the transaction that is the subject of this document is found to lack economic substance or fails to satisfy any other similar rule of law. This document has been prepared pursuant to an engagement between PricewaterhouseCoopers LLP and its Client and is intended solely for the use and benefit of that Client and not for reliance by any other person.

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